Summer 2013 Climate Summary For Southwest Lower Michigan

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Overview

The 2013 summer season (June through August) for Southwest Lower Michigan was the coldest since 2009. Across the area, temperatures averaged within 1 degree of normal (Figure 1). This was the first summer since 2009 to not be warmer than normal across the area. While the temperature averaged near normal, this did not truly tell the story of how much the temperature fluctuated. The summer of 2013 was marked by unusually large shifts in the weekly temperature. While this happened in all three summer months it was more prevalent from mid-July through the end of August.

June started out on the cold side; on the morning of the 3rd Baldwin had a low of 32°F, the coldest reported low temperature of the summer in Southwest Lower Michigan. Most other locations had lows from the mid-30s to mid-40s. The first three weeks of June were colder than normal. Finally, more typical summer warmth moved into the area from the fourth week of June through the second week of July. Highs were mostly in the 80s with lows in the 60s. It was then, during the start of the third week of July, that the more extreme swings in temperature set in. There was a string of 6 days with highs at most inland station in the lower to mid-90s. That was the hottest weather of the summer; Holland's Tulip City Airport reported a high of 97° on the 19th of July for the highest reported temperature in Southwest Michigan for the summer. Most of the other reporting stations had their highest high temperature on the 19th of July. An unusually prolonged cool spell followed from the fourth week of July through the second week of August. High temperatures during this time struggled to reach 80°. At Grand Rapids, the high exceeded 80° on only 3 days during that time. Finally, the last two weeks of August were warmer than normal. The average temperature for the summer being near normal that came from an unusually long period of hot weather sandwiched between two unusually long periods of cool weather.

Rainfall was below normal north of I-96 (Figure 2) and west of US-131. Southeast sections had the greatest rainfall. The heaviest reported rainfall was at Hanover, which had 15.36 inches of rain. The cooperative station 5 miles northwest of Battle Creek was close with 15.15 inches. Our climate station at Lansing had the third highest total with 14.92 inches of rain. The Allendale cooperative station reported the lowest official rainfall of 5.51 inches.

In June there were periods of heavy rain during the second half of the month with numerous instances of 1 to 3 inch rainfall totals across Southwest Lower Michigan. Reports of flooding occurred in the Kalamazoo area on the 25th with 2 to 4 inches of rain falling in a short time. Additional significant rainfall struck the Lansing area on the 28th with a band of 1 to 3 inches that produced localized flooding and temporary barricading of roads.

In July a round of severe thunderstorms affected the Plainwell and Kalamazoo areas late on the 21st with numerous trees being blown down. Accompanying the storms was heavy rainfall in some locations, also stretching up into Grand Rapids. Reports of 1 to 2 inches of rain in the Grand Rapids and Kalamazoo areas were common. Very heavy rainfall of 3.8 inches fell in Oshtemo in about 3 hours.

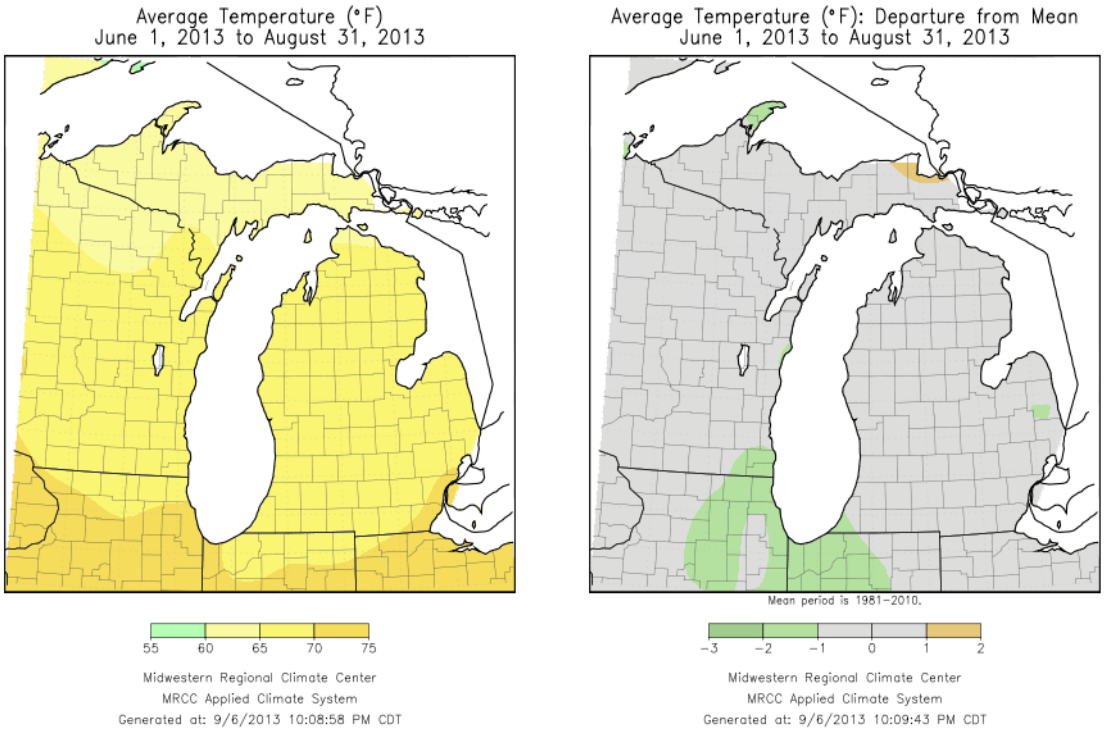
In August, a Mesoscale Convective System (MCS) swung over the northern periphery of a large ridge and traveled southeast over Lower Michigan on the 27th of August. The large complex developed in Wisconsin and dropped the heaviest rainfall amounts in a swath down through the center of Lower

Michigan, just east of U.S. 131. Lansing actually set a daily rainfall record of 3.39 inches on August 27th, breaking the old record of 1.50 inches set in 1869. Minor flooding in parking lots, basements, and streets around Lansing and Mt. Pleasant were reported.

Severe weather events were typically infrequent as they have been for the past 3 summers. Preliminary data indicates there were only seven severe weather episodes during the summer of 2013, which was also the number of episodes in 2011 and 2012. A severe weather episode is 3 or more severe weather events within 6 hours of each other.

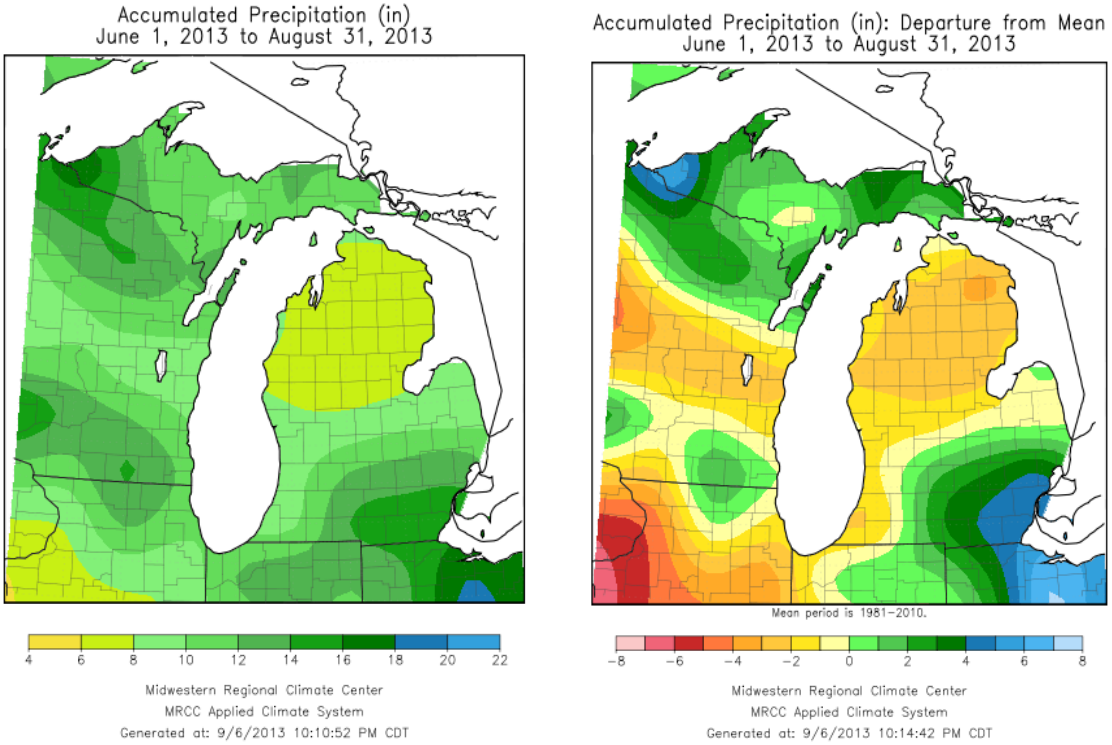
Table 1. Reported temperature, precipitation, and snowfall amounts for the Summer of 2013 at the primary climate stations in Southwest Lower Michigan. Normals are computed from 30-year averages from 1981-2010.

Location		Temperature (°F)	Precipitation (inches)	Snowfall (inches)
Grand Rapids	*Reported*	70.4	9.63	0.0
	Normal	70.6	11.14	0.0
	Departure	- 0.2	- 1.51	0.0
Lansing	*Reported*	69.4	14.92	0.0
	Normal	69.6	9.52	0.0
	Departure	- 0.2	+ 5.40	0.0
Muskegon	*Reported*	69.1	8.56	0.0
	Normal	69.1	8.31	0.0
	Departure	0.0	+ 0.25	0.0



1a 1b

Figure 1. Average temperature (1a) and departure from normal (1b) for Summer 2013 for Michigan.



2a 2b

Figure 2. Summer 2013 total precipitation (2a) and departure from normal (2b).

For more details on the monthly statistics and significant weather events, please see the monthly weather summaries listed below:

Grand Rapids Summer 2013 Detailed Climate Summary: GRR Summer Climate Summary

Lansing Summer 2013 Detailed Climate Summary: LAN Summer Climate Summary

Muskegon Summer 2013 Detailed Climate Summary: MKG Summer Climate Summary

June 2013 Climate Summary: http://www.crh.noaa.gov/images/grr/climate/CS201306.pdf

July 2013 Climate Summary: http://www.crh.noaa.gov/images/grr/climate/CS201307.pdf

August 2013 Climate Summary:
http://www.crh.noaa.gov/images/grr/presentations/August_2013_Climate_Report_for_Southwest_Lower_Michigan_2013-09-01_16-29-19.pdf